

**FIRST OBSERVATION IN NATURE OF EFFECTIVE PREDATOR
DEFENCE BEHAVIOUR IN THE SPINY FOREST KATYDID
PHRICTA SPINOSA REDTENBACHER (ORTHOPTERA:
PSEUDOPHYLLINAE: PHRICTINI)**

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Abstract

Phricta spinosa Redtenbacher, 1892 is recorded for the first time using its hind legs to successfully repel an avian predator, the Little Shrike-thrush, *Colluricincla megarhyncha* (Colluricinclidae).

Introduction

Spiny forest katydids of the genus *Phricta* Redtenbacher are common inhabitants of most rainforests and wet sclerophyll forests from northern New South Wales to the Daintree region of northern Queensland, Australia (Rentz *et al.* 2005).

Rentz *et al.* (2005) provided photographs of two species, *P. spinosa* Redtenbacher, 1892 and *P. tortuwallina* Rentz, Su & Ueshima, 2005, turning and using the hind femora in defence when artificially stimulated. The record presented here is the first documentation of this behaviour in nature.

Spiny forest katydids are inhabitants of the forest understorey, where they rest by day on branches and tree trunks, usually with legs akimbo holding tightly to the substrate (Rentz *et al.* 2005). If discovered and threatened, the katydid raises both hind legs simultaneously at right angles to the body and flicks them vigorously. Both the femur and tibia are endowed with stout spines. In *P. spinosa*, there may be an additional defence in that the hind femora are reddish brown with a dark brown to black spot at the base of each, seemingly resembling 'eyes' (Fig. 1). Other species, such as *P. tortuwallina*, lack the spots but have the ventral surface of the femur reddish orange. Rentz (2010) noted that *P. spinosa* is often preyed upon by the Black Butcherbird, *Cracticus quoyi* (Lesson & Garnot) (Artamidae), which systematically searches for them, and opportunistically by honeyeaters (Meliphagidae) and the Australian Brush-turkey, *Alectura lathami* Gray (Megapodiidae).

Discussion

During a survey of birds in rainforest at 330 m at Kuranda in northern Queensland, at 1530h in July 2015 a mature female Giant Spiny Forest Katydid, *P. spinosa*, was observed to successfully repel attempts by a Little Shrike-thrush, *Colluricincla megarhyncha* (Quoy & Gaimard) (Colluricinclidae), to consume it. The katydid was located 5 m above the ground, amongst foliage of a pepper vine (*Piper* sp: Piperaceae) encircling the trunk of a tree.

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COVER

Tellervo zothus (Fabricius), mating in rainforest understory at Mission Beach, northern Queensland. This species is one of a handful of true understory dwelling butterflies in Australia. Males form leks, mating dances of several individuals, in sunny patches in the morning. Females approach, then are led by a male to the underside of a nearby leaf where copulation ensues. Sometimes the female leads and initiates genital contact. As in many butterflies, the male, right, enters a catatonic state during ejaculation. Pen and ink drawing by Caloundra ESQ member, Dr Albert Orr, whose illustrated books on butterflies and dragonflies have won awards in Australia and overseas. His second book on New Guinea Odonata has just appeared (see *Australian Entomologist* **43** (1): 38).



Fig. 1. Image of *Phricta spinosa*, showing the reddish-brown hind femora with a dark brown to black spot resembling 'eyes' at the base (Photo by DCF Rentz).

The Little Shrike-thrush made 20-30 unsuccessful attempts to catch the katydid as it moved around the trunk to avoid the bird. The katydid then glided down to dense vegetation on the ground and the bird made an unsuccessful attempt to catch it as it fell. It then perched on a vine and, briefly and unsuccessfully, looked for the katydid before resuming its search of adjacent mid-level vegetation. The bird and katydid were photographed (Fig. 2) immediately before the katydid dropped to the understorey. The identity of the katydid was determined by DCFR when the image was displayed on a computer screen. The image, despite being of poor quality, clearly shows the katydid striking the breast of the shrike-thrush with its hind legs. The repeated and unsuccessful attempt by *C. megarhyncha* to prey upon the katydid and its eventual escape indicates the defensive activity of *P. spinosa* was successful. Rentz (2010) reported the Black Butcherbird frequently consuming this species of katydid but *Cracticus quoyi* is a larger (330-410 v. 170-190 mm) and heavier (180 v. 34.5 g) bird (HANZAB 2002, 2006) and, with a longer bill, is better equipped to tackle prey as well protected as *P. spinosa*. However, the success of the Giant Spiny Forest

Katydid in resisting the predation attempt by the shrike-thrush suggests that adult *P. spinosa* are capable of repelling predation attempts by smaller, insectivorous avian species such as monarchs, *Monarcha* and *Arses* spp, honeyeaters, *Meliphaga*, *Myzomela* and *Xanthotis* spp, and trillers, *Lalage* spp, common at the site and in similar adjacent habitat.



Fig. 2. Image of *Phricta spinosa* striking with its hind femora the breast of a Little Shrike-thrush, *Colluricincla megarhyncha*, attempting to prey upon it (Photo by G.W. Wilson).